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10/536,462	12/05/2005	Mirko Lehmann	3000-0022	4952

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EXAMINER	
ENIN-OKUT, EDUE	
ART UNIT	PAPER NUMBER
1795	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,462	LEHMANN, MIRKO	
	Examiner	Art Unit	
	Edu E. Enin-Okut	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/25/05, 6/30/06, 3/26/07, 11/12/07.

DETAILED ACTION

Priority

1. Acknowledgment is made of Applicant's claim for foreign priority to German Patent Application No. 102 55 736.5, filed on November 29, 2002, under 35 U.S.C. 119(a)-(d). A certified copy of that application has been received.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "5" has been used to designate both a "proton-permeable layer" and "membrane-electrode unit". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure:

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

4. The disclosure is objected to because of the following informalities: Paragraph 52 recites "… Reactant channels 4° …". It appears that this should be "… Reactant channels *4 oo* …". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the reactant infeed device". There is insufficient antecedent basis for this limitation in the claim.

Examiner's Note: For purposes of examination, it is assumed that Applicant is referring to "the reactant delivery device" recited in claim 1.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, 4-5, 13-16 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Keppeler, U.S. Patent Application Publication No. 2002/0098399 (cited in IDS).

Regarding claim 1, Keppeler discloses a fuel cell [fuel cell system 1] (para. 23; Figure) with:

- a first electrode [cathode space 3] and a second electrode [cathode space 3], one of which is formed as the cathode and the other as the anode (para. 23; Figure),

- a layer that is permeable at least to protons [proton-permeable membrane 4], with catalytic activity or an additional catalytic material in the region between the first electrode and the second electrode (para. 23; Figure),
- a fuel delivery device to provide a fuel (H_2) [feeding pipe 5 or anode space 2] (para. 23-24, 28; Figure), and
- a reactant delivery device to provide a reactant (O_2) [feeding pipe 6] (para. 23-24; Figure), which reacts with protons from the fuel (H_2) to generate current (para. 28), with the fuel delivery device and the reactant delivery device being positioned on the side of the first electrode and on the side of the second electrode (Figure), respectively,
- where the fuel (H_2) is integrated into the material of one of the electrodes formed as the fuel delivery device (para. 18, 28).

Regarding claim 2, Keppeler discloses that the fuel delivery device comprises a contacted material that is treated with the fuel (para. 24, 26).

Regarding claim 4, Keppeler discloses that hydrogen (H_2) is integrated into the fuel delivery device as the fuel (para. 18, 28).

Regarding claim 5, Keppeler discloses that the reactant infeed device for the infeed of the reactant (O_2) [feeding pipe 6] (para. 24) comprises the space surrounding at least the second electrode or the space surrounding the reaction region [cathode space 3] (para. 23-24).

Regarding claim 13, Keppeler discloses a method for manufacturing a fuel cell [fuel cell system 1] in which a first electrode [cathode space 3], a second electrode [cathode space 3], and a proton-permeable layer with catalytic activity [proton-permeable membrane 4] separating them are produced (para. 23; Figure).

Keppeler further discloses that a catalytic material is produced between the electrodes characterized in that a fuel delivery device is produced as an integral part of one of the electrodes

(para. 18, 28), with the material of the fuel delivery device being treated with fuel during its preparation or thereafter (para. 27-28).

Regarding claim 14, Keppeler discloses a fuel cell [fuel cell system 1] (para. 23; Figure), comprising:

- a first electrode [cathode space 3] and a second electrode [anode space 2], one of which is formed as the cathode and the other as the anode (para. 23),
- a layer that is permeable at least to protons [proton-permeable membrane 4], with catalytic activity or an additional catalytic material in the region between the first electrode and the second electrode (para. 23; Figure),
- a fuel delivery device to provide a fuel (H_2) [feeding pipe 5 or anode space 2] (para. 23-24, 28; Figure), and
- a reactant delivery device to provide a reactant (O_2) [feeding device 6] (para. 23-24; Figure), which reacts with protons from the fuel (H_2) to generate current (para. 28), with the fuel delivery device and the reactant delivery device being positioned on the side of the first electrode and on the side of the second electrode (Figure), respectively,
- where the reactant (O_2) for generating a given amount of current is integrated into the material of one of the electrodes produced as a reactant delivery device and/or in a layer adjacent to it (para. 26-28; Figure),
- and the fuel cell is designed so that only reactant from this reactant delivery device can react with the fuel (para. 23-24; Figure).

Regarding claim 15, Keppeler discloses that the reactant delivery device comprises a contacted material that is treated with the reactant (para. 24, 26).

Regarding claim 16, Keppeler discloses that oxygen (O_2) is integrated into the reactant delivery device (para. 19, 26-28).

Regarding claim 24, Keppeler discloses a method for manufacturing a fuel cell [fuel cell system 1] in which a first electrode [cathode space 3], a second electrode [cathode space 3], and a proton-permeable layer with catalytic activity [proton-permeable membrane 4] separating them are produced (para. 23; Figure), characterized in that a reactant delivery device is produced as an integral part of one of the electrodes (para. 19, 26-28), with the material of the reactant delivery device being treated with reactant during its preparation or thereafter (para. 26-28).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keppeler in view of Plust et al., U.S. Patent No. 3,338,746 (cited in IDS).

Keppeler is applied and incorporated herein for the reasons above.

Regarding claim 3, Keppeler does not expressly teach that the fuel delivery device comprises palladium (Pd).

Plust teaches a low temperature fuel cell with an oxygen accumulator electrode of nickel or silver oxide impregnated with palladium (Title; 4:1-7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use palladium as the fuel delivery device of Keppeler, as taught by Plust, because it is known in the art as a material used in fuel cell electrodes that accumulate oxygen.

Regarding claims 8-9, Keppeler does not teach that a control device for controlling a current flow or an energy infeed; or, a control device to activate the electrochemical reaction in the fuel cell, or to complete the electrical circuit through the electrodes of the fuel cell.

Plust teaches that, if a demand for more power exists, switches 31 connect the accumulator electrodes 27, 28 with the electrodes 4, 5 used during normal operations to allow the full capacity of the accumulator electrodes to be added to the power provided by the fuel cell (1:46-48, 3:10-31; Fig. 1).

One of ordinary skill in the art at the time of the invention would have found it obvious to incorporate a control device into the fuel cell of Keppeler, as taught by Plust, to have the ability to determine when the fuel and reactant delivery devices of the cell are engaged to begin providing power.

Regarding claim 10, Keppeler, discussed above, teaches that, when the gas supply via pipes 5 and 6 are interrupted, the fuel cell system can be operated as a battery, and can produce current without any additional supply of hydrogen and air (para. 28).

Keppeler does not expressly teach that the control device comprises a closed closure device, wherein the space around the reaction region of the fuel with the reactant (O_2) has no fuel, and wherein fuel from the external space enters the reaction region by opening the closure device.

However, one of ordinary skill in the art would appreciate that the interruption described by Keppeler can be initiated by the shutting off of a valve or the movement of a louver into the gas plow path.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a closed closure device into the fuel cell of Keppeler because the device would provide control of the supply of fuel and reactant to the cell.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keppeler in view of Murkerjee et al., U.S. Patent Application Publication No. 2002/0168560.

Keppeler is applied and incorporated herein for the reasons above.

Regarding claim 11, Keppeler does not teach that at least the fuel cell being designed as a replaceable module.

Murkerjee teaches that a modular configuration of fuel cells permits the arrangement of the cells to be easily adjusted to meet specific physical design criteria, such as, for example, a particular packaging arrangement (para. 49). In addition, the modules can be serviced or replaced individually, and making maintenance easier by avoiding the disassembly of a fuel cell assembly (para. 49).

One of ordinary skill in the art at the time of the invention would have found it obvious to make the fuel cell of Keppeler a replaceable module, as taught by Murkerjee, to make the process of adjusting the arrangement of cells to the size of the unit they are to use in easier and improve the ease of cell maintenance.

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keppeler in view of Uchida et al., U.S. Patent No. 6,057,051 (cited in IDS).

Keppeler is applied and incorporated herein for the reasons above.

Regarding claim 12, Keppeler does not teach a fuel sensor that is positioned in the fuel delivery device and/or in the reaction region between the protons and the reactant, to determine the available or current amount of fuel.

Uchida teaches methods of detecting an operating time of the fuel cell including a method of using a pressure sensor for detecting an amount of the hydrogen remaining in a hydrogen

storage unit, a method of detecting an accumulated flow rate of the hydrogen, a method of integrating an amount of the generated electricity to find an amount of reaction of the hydrogen to thereby calculate an amount of the remaining hydrogen, and a method of detecting an amount of the formed water by the above-mentioned method to calculate an amount of consumption of the hydrogen (7:39-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place a fuel sensor in the fuel delivery device of Keppeler, as taught by Uchida, to allow the user of a device powered by the fuel cell to estimate the operating time the device has remaining (see Uchida, 7:39-40).

14. Claims 1, 6-7, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al., U.S. Patent Application Publication No. 2003/0003347 (cited in IDS), in view of Keppeler. Additional supporting evidence provided by *Collins Dictionary of Computing*.

Regarding claim 1, D'Arrigo teaches a fuel cell for an electrical load circuit includes a first monocrystalline silicon substrate and a positive half-cell [1] formed therein, and a second monocrystalline silicon substrate and a negative half-cell [2] formed therein (Abstract; para. 34-35; Fig. 1). Each half-cell includes a microporous catalytic electrode [3, 4] permeable to a gas (Abstract; para. 36). A cation exchange membrane [PEM] separates the two microporous catalytic electrodes (Abstract; para. 38). Each half-cell includes a passageway [7, 8] for feeding the respective gas to the corresponding microporous catalytic electrode (Abstract; para. 36).

D'Arrigo does not expressly teach that the fuel (H_2) is integrated into the material of one of the electrodes formed as the fuel delivery device and/or of a layer adjacent to it.

Keppeler, discussed above, teaches a fuel cell with an anode space containing a hydride-forming and/or hydrogen-storing compound (or substance) (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the hydrogen storage material of Keppeler into one of the electrodes of

the fuel cell of D'Arrigo to allow the cell to operate without providing hydrogen to the cell (see Keppeler, para. 28).

Regarding claim 6, D'Arrigo teaches that each half-cell of the fuel cell is connectable to an electrical load circuit (Abstract; para. 13).

Regarding claim 7, D'Arrigo teaches that a fuel cell can be at least partly integrated on a silicon chip containing an integrated circuit to be powered by the cell (Title; Abstract; para. 13, 15). The resulting device is particularly suitable for use in power portable instruments and devices, and more particularly, systems that may be entirely integrated monolithically on silicon, such as mobile radios, monitoring instruments, portable computers, signaling devices, radio beacons and gas sensors integrated together with associated monitoring, testing and signaling circuitry formed on silicon (para. 12).

D'Arrgio does not expressly teach that its integrated circuit is a CMOS circuit.

One of ordinary skill in the art would readily appreciate that CMOS is a form of construction for integrated circuits that requires very low power inputs and is now being extensively used both for microprocessors and for memories (see "CMOS" from *Collins Dictionary of Computing*).

Therefore, that artisan would readily appreciate that the electrical circuit of D'Arrgio can be a CMOS circuit that provides the required circuitry for a number of portable devices, as taught by D'Arrgio.

Regarding claim 14, D'Arrigo, discussed above, does not expressly teach that reactant (O_2) for generating a given amount of current is integrated into the material of one of the electrodes produced as a reactant delivery device and/or in a layer adjacent to it.

Keppeler, discussed above, teaches a fuel cell with a cathode space containing an easily oxidizable compound (or substance) that, when the fuel cell is operated without any additional

supply of hydrogen or air, leads to an reduction reaction in the cathode space which produces oxygen (Abstract; para. 27-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to integrate an O_2-generating material into one of the electrodes of the fuel cell of D'Arrigo, as taught by Keppeler, to allow the cell to operate without providing oxygen to the cell (see Keppeler, para. 28).

Regarding claim 17, the limitations recited by this claim has been addressed above with respect to claims 6 and 7.

15. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al. and Keppeler as applied to claim 17 above, further in view of Plust et al.

D'Arrigo and Keppeler are applied and incorporated herein for the reasons above.

Regarding claims 18-19, D'Arrigo and Keppeler does not teach that a control device for controlling a current flow or an energy infeed; or, a control device to activate the electrochemical reaction in the fuel cell, or to complete the electrical circuit through the electrodes of the fuel cell.

Plust, discussed above, teaches the use of switches connecting accumulator electrodes with electrodes to allow a fuel cell to deliver additional power periodically (1:46-48, 3:10-31).

One of ordinary skill in the art at the time of the invention would have found it obvious to incorporate a control device into the fuel cell of D'Arrigo, as modified by Keppeler, in the manner taught by Plust to have the ability to determine when the fuel and reactant delivery devices of the cell are engaged to begin providing power.

Regarding claim 20, Keppeler, discussed above, teaches that, when the gas supply to its fuel cell is interrupted, the cell can produce current without any additional supply of hydrogen and air.

D'Arrigo, Keppeler and Plust do not expressly teach that the control device comprises a closed closure device, wherein the space around the reaction region of the fuel with the reactant

(O_2) has no fuel, and wherein fuel from the external space enters the reaction region by opening the closure device.

However, as discussed above with respect to claim 10, one of ordinary skill in the art would appreciate that the interruption described by Keppeler can be initiated by the shutting off of a valve or the movement of a louver into the gas plow path.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a closed closure device into the fuel cell of D'Arrgio, as modified by Keppeler and Plust, because the device would provide control of the supply of fuel and reactant to the cell.

16. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo and Keppeler as applied to claim 17 above, further in view of Murkerjee et al.

D'Arrigo and Keppeler is applied and incorporated herein for the reasons above.

Regarding claim 21, neither D'Arrigo nor Keppeler expressly teaches that at least the fuel cell being designed as a replaceable module.

Murkerjee, discussed above, teaches that a modular configuration of fuel cells permits the arrangement of the cells to be easily adjusted to meet specific physical design criteria, such as, for example, a particular packaging arrangement and allows modules to be serviced or replaced individually (para. 49).

One of ordinary skill in the art at the time of the invention would have found it obvious to make the fuel cell of D'Arrigo, as modified by Keppeler, a replaceable module in the manner taught by Murkerjee so the process of adjusting the arrangement of cells to the accommodate the size of the unit they are to be used in is easier and the ease of cell maintenance is improved.

17. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo, Keppeler and Murkerjee as applied to claim 21 above, further in view of Uchida et al., U.S. Patent No. 6,057,051.

D'Arrigo, Keppeler and Murkerjee is applied and incorporated herein for the reasons above.

Regarding claim 22, D'Arrigo, Keppeler and Murkerjee do not expressly teach a reactant sensor that is positioned in the reactant delivery device and/or in the reaction region between the protons and the reactant, to determine the available or current amount of reactant.

Uchida, discussed above, teaches several methods of determining the fuel (i.e., hydrogen) available to a fuel cell.

Uchida does not expressly teach a method with respect to the reactant available to a fuel cell.

However, one of ordinary skill in the art would appreciate that the methods described by Uchida can be applied to the reactant (e.g., O_2, etc.) of a fuel cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place a reactant sensor in the reactant delivery device of D'Arrigo, in the manner taught by Uchida to allow the user of a device powered by the fuel cell to estimate the operating time the device has remaining (see Uchida, 7:39-40).

18. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo, Keppeler and Murkerjee as applied to claim 21 above, further in view of Anderten et al., U.S. Patent No. 4,164,172 (cited in IDS).

D'Arrigo, Keppeler and Murkerjee is applied and incorporated herein for the reasons above.

Regarding claim 23, D'Arrigo, Keppeler and Murkerjee do not expressly teach a circuit for measuring the resistance of the fuel delivery device or of the reactant delivery device, for determining the remaining amount of fuel or of reactant.

Anderten teaches a fuel cell 36 connected to an oxygen control circuit 34, which employs a FET (field effect transistor) to measure the resistance in the circuit, that controls the amount of

oxygen made available to the cell dependent upon the magnitude of the current produced by the cell (Abstract; 4:16-33, 4:45-58, 4:59-5:3, 5:21-36; Fig. 3).

One of ordinary skill in the art would appreciate that the methods described by Anderten can be applied to the fuel (e.g., H_2, etc.) of a fuel cell.

Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a circuit of Anderten to measure the resistance of the fuel delivery device or the reactant delivery device of D'Arrigo, as modified by Keppeler and Murkerjee, to control the amount of fuel or reactant made available to its fuel cell.

Regarding claim 25, D'Arrigo, Keppeler and Murkerjee do not expressly teach a measuring device for determining the strength of the current or the voltage generated by the fuel cell as a measured variable parameter for the fuel or reactant (O_2).

Anderten also teaches that the oxygen control circuit 36 discussed above responds to predetermined maximum and minimum voltage levels corresponding to maximum and minimum oxygen partial pressures of the air made available to the fuel cell 36 (4:59-3, 5:49-6:43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the measuring device of Anderten in the fuel cell of D'Arrigo, as modified by Keppeler and Murkerjee, to control the amount of reactant made available to the cell.

Double Patenting

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with

this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 1-3, 14 and 16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-4, 6 and 14-15 of U.S. Patent Application No. 11/074,594 (allowed on April 28, 2008).

Although the conflicting claims are not identical, they are not patentably distinct from each other because all the elements of the instant application claims 1-3, 14 and 16 are to be found in Application No. 11/074,594 claims 1, 3-4, 6 and 14-15, as the instant application claims 1-3, 14 and 16 fully encompasses Application No. 11/074,594 claims 1, 3-4, 6 and 14-15 and therefore anticipate the claims.

Correspondence / Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Edu E. Enin-Okut** whose telephone number is **571-270-3075**. The examiner can normally be reached on Monday-Thursday, 8 a.m. - 4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edu E Enin-Okut/
Examiner, Art Unit 1795

/Susy Tsang-Foster/
Supervisory Patent Examiner, Art Unit 1795